PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Donald R. Huffman pplicants: et al.

Examiner:

P. DiMauro

Serial No.: 08/471,890

Art Unit: 1103

Filed: June 7, 1995

Docket: 7913ZY

For: NEW FORM OF CARBON

March 4, 1997 Dated:

Assistant Commissioner for Patents Washington, D.C. 20231

MAR 2 U 1997

GROUP 1100

INFORMATION DISCLOSURE STATEMENT

Sir:

In accordance with the duty of disclosure under 37 C.F.R. §§1.56, 1.97 and 1.98, applicants, are making a record of art for consideration by the United States Patent and Trademark Office. The art is listed on the accompanying PTO 1449 form, the contents of which are incorporated by reference. The art is also listed hereinbelow:

U.S. Patent No. 4,132,671

U.S. Patent No. 3,317,354

U.S. Patent No. 4,922,827

U.S. Patent No. 5,132,105

U.S. Patent No. 4,915,977

U.S. Patent No. 4,767,608

CERTIFICATE OF MAILING UNDER 37 C.F.R. 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20321 on March 4, 1997.

Dated: March 4, 1997

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U.S. Patent No. 4,435,378

U.S. Patent No. 2,957,756

U.S. Patent No. 4,435,375

U.S. Patent No. 2,635,994

U.S. Patent No. 3,009,783

U.S. Patent No. 3,172,774

U.S. Patent No. 4,167,444

U.S. Patent No. 5,114,477

U.S. Patent No. 5,234,474

UK Patent Appln. No. GB 2 101 983 A

Japanese Patent Appln. No. 2-160696

Japanese Patent Appln. No. 2-221194

Russian Patent No. 1,587,000

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The present application is a continuation of USSN 07/580,246, filed August 10, 1990 which is a CIP of USSN 07/575,254, filed on August 30, 1990. Applicants are relying upon each of the above-identified applications for an earlier filing date under 35 U.S.C. §120.

Much of the art listed hereinabove and in the accompanying PTO-1449 form was made of record in at least one of the above applications, particularly USSN 07/580,246. Inasmuch as a copy of much of the art listed hereinabove and in the accompanying PTO 1449 form has already been submitted in one of the above-identified applications, in accordance with 37 C.F.R. \$1.98(d), applicants are not forwarding a copy of these references. Accordingly, applicants are enclosing a copy of only that which is newly cited.

Most of the art listed therein is in the English language. However, a few are not in English. In accordance with 37 C.F.R. §1.98(a)(3) a concise explanation of the

relevance, as it is presently understood, is summarized hereinbelow.

Keller, in <u>GIT Fachz Lab.</u>, <u>1987</u>, 31, 618-623 discloses that the irradiation by intense laser light of their graphite foils causes the vaporization of carbon fragments which can be identified by mass spectroscopy. According to the author, the mass spectrum indicates that C60 possesses special stability. The article confirms the stability of the C60 since there was practically no reaction of C60 with, <u>inter alia</u>, gaseous NO, SO₂ and NH₃.

Anales Astrophysic, "Etude De Poussieres De Fer et De Carbone," J. Lefevre, Tome 30, Annee, 1967, Fasc 4, pp. 731-738, discloses that carbon and ion grains have been produced in argon arc discharge. The article discloses that the grains are associated in chain-like structures.

The other two references not in the English language,

JO 2221-194A and JO 2160-696, had abstracts in the English

language attached thereto. These abstracts attached thereto are
incorporated herein by reference.

In addition, the Russian Patent 1,587,000 and West German Patent 2,414,215 are also not in the English language, but these were cited by the U.S. Patent and Trademark Office in U.S.S.N. 08/236,933. Thus, a translation thereof and/or abstract thereof was provided in this application, and the contents thereof are incorporated by reference.

Consideration of the Information Disclosure Statement is respectfully requested since the art provided may be material to the examination of the present application, as defined in 37 C.F.R. §1.56(a).

Inasmuch as this Information Disclosure Statement is being submitted after the issuance of a first Office Action on the merits, but prior to the issuance of a final Official Action or a Notice of Allowance, in accordance with the provisions of 37 C.F.R. §1.97(c), authorization is given to charge applicants' account the fee set forth in 37 C.F.R. §1.17(p).

Respectfully submitted,

Mark J. Cohen Reg. No. 32,21:

Scully, Scott, Murphy & Presser 400 Garden City Plaza Garden City, New York 11530 (516) 742-4343

MJC/djm/bb

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	AA	2,635,994	4/27/50	Tierman					
	AB	2,957,756	10/60	Bacon					
	AC	3,009,783	12/4/59	Sheer, et al.					
	AD	3,172,774	2/28/61	Diefendorf					
	ΑE	3,317,354	5/2/67	Darrow, et al.					
	AF	4,132,671	2/2/79	Deininger, et al.					
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	AH	4,435,375	3/6/84	Tamura, et al.					
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	AP	Aihara et al., 8 <u>Jpn.</u> , 61, 1988,		omaticity of Buckmins 59	terfulle	rene, <u>Bul</u>	l. Chem.	Soc.	
	AR	Akhter, et al., Spectroscopy, 3		re of Hexane Soot II: pp. 154-167	Extrac	tion Stud	ies, <u>App</u>	lied	
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	AV	Bacon, R., J. A	oplied Physic	es, 31(2), 1960, pp.	283-290				
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	AC	5,114,477	5/19/92	Mort, et al.				
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	AS	Brown, High Sym 1987, pp. 128-1		uantum Chemistry, Che	emical Ph	ysics Let	ters, 136(2),
	АТ	Buseck et al., 1992, pp. 215-2		rom the Geological Er	vironmer	t, <u>Scienc</u>	<u>e</u> , 257(5067),
	AU	Bussoletti, Dus	ty Objects in	n the Universe, pp. 8	19-93		
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	AS	Curl et al., Pr	obing C ₆₀ , <u>Sc</u>	<u>ience</u> , 242, 1988, pp	. 1017-10	22		
	AT	Curl et al., Fu	llerenes, <u>Sc</u>	ientific America, 199	91, pp. 5	4-64		
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	AS	Disch et al., On Letters, 125(5)		l Clusters of Carbon o. 465-466	Atoms: C ₆	, <u>Chemica</u>	l Physics	
	AT	Ebbesen, et al. 1634-1635	, Origins of	Fullerenes in Rocks,	Sc	ience, 26	8, 1995, pp.	
	AU	Elser et al., Ma Physics Third Se	agnetic Behaveries, 36(10)	vior of Icosahedral C), 1987, pp. 4579-458	260, <u>Phys</u> 35	ical Revi	ew of General	<u>.</u>
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	AS	Fowler et al., π 1986, pp. 78-83	-Systems in	Three Dimensions, C	hemical E	hysics Le	tters,	127(1),
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	AV	Haddon et al., of Spheroidal Ca	Rehybridizat: arbon Cluste	ion and π-Orbital Ali rs, <u>Chemical Physics</u>	gnment:T Letters,	he Key to	the Expp. 165	istence -169
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	AR	Leger et al., Io Interstellar Dus	lentification st?", <u>Astron</u>	n of the "Unidentific . Astrophys., 137, 1	ed IR Emi 986, pp.	ssion Fea L5-L8	tures of	
	AS	Lineman et al., by Laser Mass Sp	High Mass Co ectrometry,	arbon Clusters from J. Phys. Chem., 93,	Aromatic 1989, pr	Hydrocarb . 5025-50	ons Observed 26	
-	AT	Liu et al., Nega Nature of C_{ϵ_0} , C_{ϵ_0}	ative Carbon nemical Phys	Cluster Ion Beams:Noics Letters, 126(2),	ew Evider 1986, p	ce for th 215-217	e Special	
	AU	Loffler et al., Letters, 137(4),		Carbon Ions in Hydro 306-310	carbon Fl	ames, <u>Che</u>	mical Physics	
-	AV	Icosahedral C60 1	Luthi et al., Ab Initio Studies on the Thermodynamic Stability of the Icosahedral C ₆₀ Molecule "Buckminsterfullerene", <u>Chemical Physics Letters</u> , 135(4)(5), 1987, pp. 357-360					
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	AT			diamond particles fr , 17, 1982, pp. 3106		ne-hydrog	gen gas,	
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	AP	McKee et al., Cal Molecular Structu	culated Pr <u>re</u> (Theoch	operties of C_{60} Isomem.), 153, 1987, pp	ners and F	ragments,	Journal	<u>ot</u>
	AR	Miller, Buckminst 3, 5, 1991, pp. 2	erfulleren 62-265	e-A Molecular Mater	ial for th	ne Future?	, Adv.	Mater.
	AS	Negri et al., Qua Activity in the E Letters, 144(1),	lectronic	cal Investigation of Spectra of Buckmins 31-36	of Franck- sterfuller	Condon and ene, <u>Chemi</u>	l Jahn-T cal Phy	eller <u>sics</u>
	AT	Newton et al., St J. Am. Chem. Soc.		Buckminsterfullere 6, pp. 2469-2470	ene and Re	lated Carl	oon Clus	ters,
	AU	O'Brien et al., A Reply to "Magic Numbers in Cn+ and Cn- Abundance Distributions Based on Experimental Observations, Chemical Physics Letters, 132(1), 1986, pp. 99-102						
	AV	O'Brien et al., P ions, <u>J. Chem. Ph</u>	hotophysic <u>ys.</u> , 88(1)	s of buckminster-fu , 1988, pp. 220-230	llerene a	nd other o	carbon c	luster
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	AR			States and Bond Lengemical Physics Lette				-244
	AS	Paquette, Dodecahedranes and Allied Spherical Molecules, <u>Chem. Rev.</u> , 1989, pp. 1051-1065						
	AT	Parent et al., Reactions with	Investigation	ns of Small Carbon Cl Chem. Soc., 111, 1989	luster Id	on Structu 393-2401	res by	
	AU	Pussoletti et a 25-42	l., Experime	nts on Cosmic Dust Ar	nalogues,	Proceedi	ngs, 149	pp.
	AV	Peak of Graphit	e Spheres wi	vities and Mantles in th Particular Referen <u>Space Science</u> , 125,	nce to a	Possibly	Discover	
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	AR			ime-of-Flight Mass S hem. Phys., 93(11),				
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	AU			and characterization), 1994, pp. 3322-33		ersonic ca	rbon clu	ıster
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	AP	Challenge for Las	ser Spectro	rum of the Icosahedra scopy, Laser Spectros ence, 1987, pp. 250-2	scopy VII	"FULLEREN II, Procee	E-60":A dings of	the	
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	AS	Rosen et al., Fi Electron Affinit Soc., 110, 1988,	ies of the	le Calculations of t Spheroidal Molecules 703	ne Ioniza C ₆₀ and I	ation Pote LaC ₆₀ , <u>J. i</u>	entials a Am. Chem.	nd -	
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	AS			ies of Carbon Cluste Conference Publication				
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	AS		Stankevich et al., The Structural Chemistry of Crystalline Carbon: Geometry, Stability, and Electronic Spectrum, Russian Chemical Reviews, 53(7), 1984, pp.						
	АТ	Stanton et al., Chem., 92, 1988		ational Modes of Buc 145	kminsterf	ullerene,	J. Phys	<u>3.</u>	
	AU			tudies of Icosahedra 28(5)(6), 1986, pp.		Some Rela	ited Spec	cies,	
	AV	Taylor et al., and C ₇₀ :The Thir	Isolation, S d Form of Ca	eparation and Charac rbon, <u>J. Chem. Soc.</u> ,	terizatio	on of the	Fullerer 90	nes C ₆₀	
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	AS	Icosahedral Symm	metry, Vibrat	ation Spectra of Icos tional Eigenfrequenci <u>em. Phys.</u> , 90(9), 198	ies, and	Normal Mo		
	АТ	Weiss et al., Ph Am. Chem. Soc.,		of Metal Complexes of pp. 4464-4465	Spheroi	dal Carbo	n Shells,	<u>J.</u>
	AU	Weltner, Jr., et 1989, pp. 1713-1		n Molecules, Ions and	l Cluster	s, Chem.	<u>Rev.</u> , 89	
	AV	Wilcox, Jr., Ext	raction with	h Solvents, <u>Experimer</u>	ntal Orga	nic Chemi	stry, pp	. 79-
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